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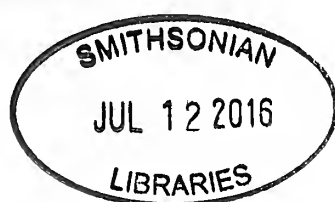
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The American Association of Zoo Keepers, Inc. exists to advance excellence in the animal keeping profession, foster effective communication beneficial to animal care, support deserving conservation projects, and promote the preservation of our natural resources and animal life.

About the Cover

This month's cover photo comes to us from Derek Pelc of the Potawatomi Zoo and features "Kong" a male Sichuan Takin (*Budorcas taxicolor tibetana*). Listed as a vulnerable species, the Sichuan Takin are native to China and bordering mountainous regions inhabiting some of the same dense bamboo forests as the Giant Panda. Despite being large and relatively slow moving, the Sichuan Takin is surprisingly agile at navigating the steep cliffs and dense thickets. A thick secondary coat, large nasal cavities that can warm incoming air, and oily skin are some of the adaptations that keep them warm and dry in this harsh environment. Considered a national treasure of China with the highest legal protection, Sichuan Takin are still threatened by habitat loss and poaching for fur and food.

Kong passed away in February after a quick decline in health due to cancer. He has sired five offspring, with the most recent born a few weeks after his death. The Potawatomi Zoo AAZK Chapter hosted a naming contest which raised over \$400 for Takin conservation. Yi-Liu, meaning "legacy", was the winning name.

Potawatomi Zoo participates in the Sichuan Takin Species Survival Program and will continue to play an active role in conservation efforts and educating guests on these magnificent but lesser-known animals.

In memory of "Kong" Feb. 2002 to Feb. 2016

Articles sent to **Animal Keepers' Forum** will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for **AKF**. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the Editor. The Editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed, appropriately-sized envelope. Telephone, fax or e-mail contributions of late-breaking news or last-minute insertions are accepted as space allows. Phone (330) 483-1104; FAX (330) 483-1444; e-mail is shane.good@aazk.org. If you have questions about submission guidelines, please contact the Editor. Submission guidelines are also found at: aazk.org/akf-submission-guidelines/.

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ANIMAL KEEPERS' FORUM

TO CONTACT THE AKF EDITOR:

Shane Good, AKF Editor
P.O. Box 535, Valley City, OH 44280
330-483-1104
Shane.Good@aazk.org

AAZK Administrative Office

American Association of Zoo Keepers
8476 E. Speedway Blvd. Suite 204
Tucson, AZ 85710-1728
520-298-9688 (Phone/Fax)

CHIEF EXECUTIVE/FINANCIAL OFFICER: Ed Hansen

E-mail: Ed.Hansen@aazk.org

DIRECTOR OF PROFESSIONAL DEVELOPMENT: Bob Cisneros

E-mail: Bob.Cisneros@aazk.org

ANIMAL KEEPERS' FORUM - EDITOR

Shane Good, Shane.Good@aazk.org

GRAPHIC DESIGNER

Elizabeth Thibodeaux, Elizabeth.Thibodeaux@aazk.org

ENRICHMENT OPTIONS COLUMN COORDINATORS

Julie Hartell-DeNardo, Heather Dunn

Casey Plummer, Dawn Neptune

TRAINING TALES COLUMN COORDINATORS

Kim Kezer, Jay Pratte, Beth Stark-Posta

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Lauren Augustine

ANIMAL WELFARE COLUMN COORDINATORS

Beth Ament, Pattie Beaven

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Vice Manager: Jim Haigwood, Jim.Haigwood@aazk.org

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Program Manager: Robin Sutker, Robin.Sutker@aazk.org



I am happy to announce our new Vice President is Bethany Bingham from Utah's Hogle Zoo. Bethany has been in the zoo profession over 20 years. She graduated from Michigan State University with a Bachelor's degree in Animal Science. Although Bethany never worked with them as a keeper, rhinos are her passion. She has been in charge of her AAZK Chapter's Bowling for Rhinos (BFR) fundraiser for 15 of her 18 years at the zoo and has represented AAZK, Inc. in Kenya and Indonesia as the BFR trip winner. Bethany has served as the President for the Utah Chapter AAZK several times and was the co-chair for the AAZK National Conference in Salt Lake City in 2008. In addition to rhinos, she loves Broadway musicals, movies, and travelling. Bethany has been a great energy and resource on the AAZK Board and will continue to help move the Association forward as Vice President.

I want to highlight our new International Outreach Committee. The purpose of the committee is to provide resources and opportunities for training and continuing education in the international community primarily through electronic resources available through AAZK Online, the AAZK Conservation Committee and AAZK National Conferences. I am pleased to announce Yvette Kemp from the San Diego Zoo and Adriana De Los Santos from the Cleveland Metroparks Zoo are our new Chair and Vice-Chair for the committee.

The committee will strive to offer resources to animal care professionals worldwide, presenting opportunities to improve animal well-being and network with leaders in the field, while increasing knowledge of wildlife conservation efforts.

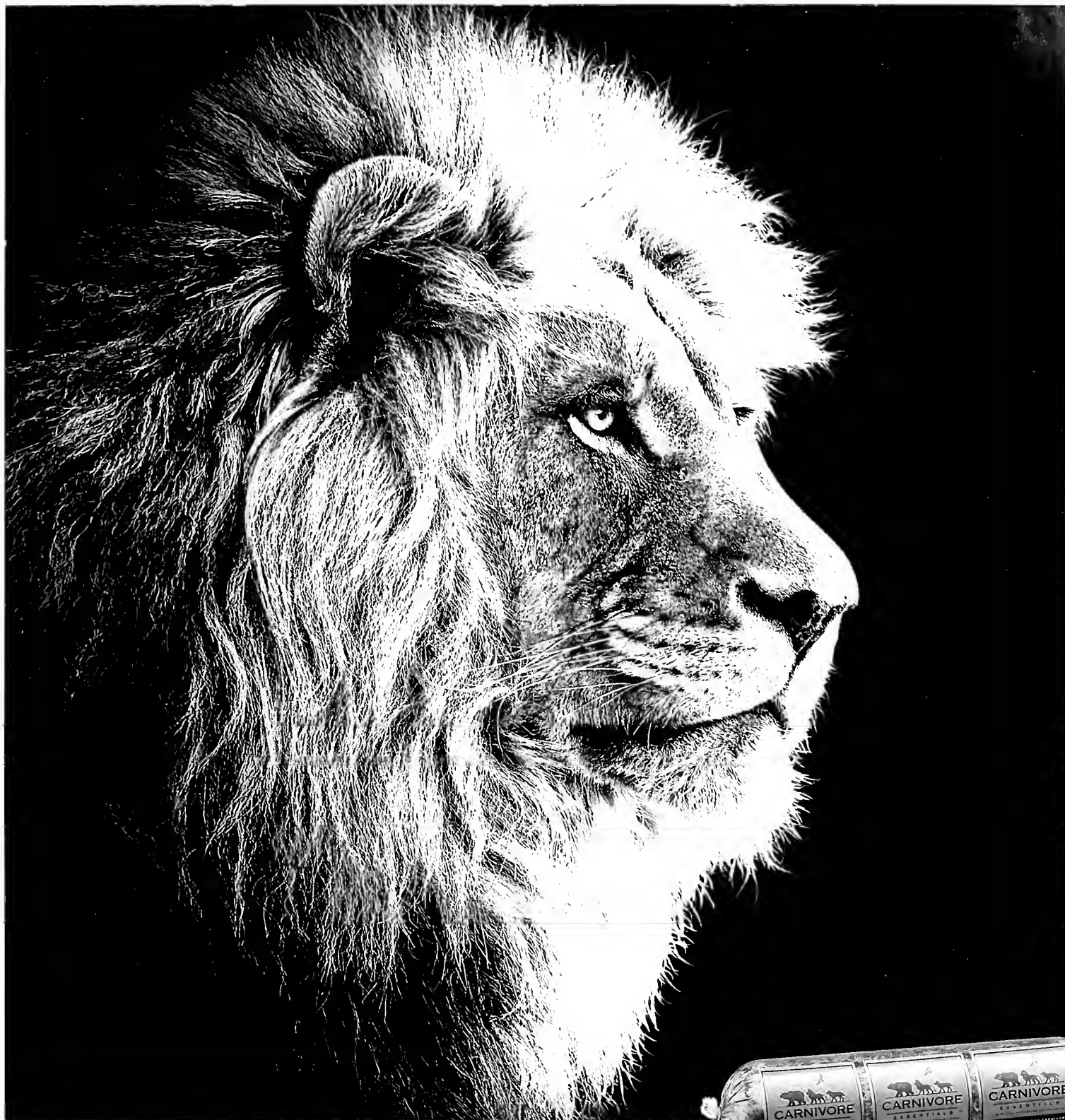
Their goal is to first focus on basic keeper skills; provide resources for basic husbandry techniques and skills for keepers.

Topics Include:

- ▶ Knowledge and importance of natural history
- ▶ Record keeping
- ▶ Diet
- ▶ Five freedoms/ animal choices

During National Zookeeper Week, please try to reach out to your community to share your experiences and passion for wildlife conservation and conserving natural resources - #KeepersCare.

Penny Jolly
Penny.Jolly@aazk.org



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COMING EVENTS

Post upcoming events here!
e-mail shane.good@aazk.org

August 1-4, 2016
14th Annual Symposium
on the Conservation and
Biology of Tortoises and
Freshwater Turtles
New Orleans, LA
For more information go to:
turtlesurvival.org/conference

August 15-17, 2016
ZAA Mid-Year Conference
Providence, RI
Hosted by Southwick's Zoo
For more information go to:
zaa.org/conference/mid-year-meetings

August 16-19, 2016
2016 Orangutan SSP
Husbandry Workshop
and Course
Madison, WI
Hosted by Henry Vilas Zoo
For more information go to:
orangutanssp.org/2016-workshop.html

August 18-20, 2016
Chimpanzees in Context
Chicago, IL
Hosted by Lincoln Park Zoo
For more information go to:
chimpsymposium.org
Will precede the joint International
Primatological Society congress and
American Society of Primatologists
meeting also at Lincoln Park Zoo.

September 7-11, 2016
AZA National Conference
San Diego, CA
Hosted by San Diego Zoo
Global and SeaWorld
San Diego
For more information go to:
aza.org/annualconference

September 25-30, 2016
International Aquarium
Congress
Vancouver, BC
Hosted by The Vancouver
Aquarium Marine
Science Centre
For more information go to:
iac2016.venuewest.com

October 1-5, 2016
Otter Keeper Workshop
Buffalo, NY
Hosted by the Buffalo Zoo
For more information go to:
otterkeeperworkshop.org

October 6-9, 2016
Advancing Bear Care 2016
Omaha, NE
Hosted by Omaha's Henry
Doorly Zoo & Aquarium
For more information go to:
www.bearcaregroup.org

October 31 - Nov. 5, 2016
2016 International
Gorilla Workshop
Guadalajara, Mexico
Hosted by the Guadalajara Zoo
For more information go to:
igw2016.wordpress.com



September 19-23, 2016
AAZK National Conference
Memphis, TN

*Hosted by Memphis Zoo AAZK
Chapter and Memphis Zoo.*

MemphisZoo.org/AAZK-Conference

November 14-18, 2016
15th International Elephant
& Rhino Conservation and
Research Symposium
Singapore Zoo.
Hosted by Wildlife
Reserves Singapore.
For more information go to:
elephantconservation.org

The AAZK Board and Staff thanks the following AAZK Chapters that donated towards the publication of the AKF in their annual re-charter packets. Your donations help us to keep improving the AKF. We look forward to another exciting year! Thanks for your support!

Little Rock Zoo Chapter
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Rocky Mountain Chapter
Jacksonville Chapter
St. Louis Chapter
Topeka Zoo Chapter
Cape May County Zoo Chapter
Galveston Chapter
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The Safety Committee is seeking a creative and passionate individual to join our team in the leadership role of Vice-Chair.

The purpose of the AAZK Safety Committee is to provide resources and opportunities for safety training provided by AAZK Online and workshops at the AAZK National Conferences. The committee focuses on the areas of emergency and crisis management, day-to-day safety practices regarding animal management, health and general worker safety.

Duties include (but are not limited to):

- Generating safety-inspired content for a variety of media platforms including "Safety Spotlights" in AAZK Animal Keepers' Forum and safety tips for AAZK social media accounts
- Generating safety content for Job Hazard Assessments and safety suggestions as general references for AAZK members
- Develop content for AAZK education programs including a 2017 Keeper Safety Workshop at the AAZK National Conference
- Assisting the Committee Chair with creating monthly meeting agendas and leading monthly meetings
- Assisting with the management of a growing team that is developing safety practices and workshops
- Candidate should have some experience with OSHA Regulations, ICS, USDA or EPA

The Vice-Chair position in Safety should be someone who has excellent communication skills, solid writing skills including content development and source analysis. The ideal candidate is someone who is detail-oriented, likes to have fun, and most importantly, has an interest and passion for safety.

Please plan to commit 10-12 hours per month in this position. Applicants must be a member of AAZK National. Please send your cover letter and resume to: Kelly.Murphy@aazk.org.





AAZK 2016

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43rd Annual National AAZK Conference

September 19-23, 2016

Registration

Don't forget to register for this year's National AAZK Conference! To register go to memphiszoo.org/aazk-conference.

Late registration begins August 1st!

Workshops

There are still spots left for this year's Certification Workshops! Be sure to register for the conference online, then e-mail us at AAZK2016@memphiszoo.org with your preference before space runs out! Certification Workshops Available: Avian Certification, Carnivore Certification, Animal Welfare Certification.

Closed Workshops Available: Firehose Enrichment Workshop

All other workshops this year are open and require NO pre-registration to attend.

Hotel

Remember to reserve your room at this year's Conference Hotel before space fills up! Call 901-678-8200. Looking for a roommate? E-mail AAZK2016@memphiszoo.org.

Chapter Challenge

Don't forget to participate in this year's Chapter Challenge! Get the chance to win a free registration for one of your delegates! For more information e-mail AAZK2016@memphiszoo.org.

Beale Street

Don't forget to register for this year's bar crawl. Enjoy a night out mid-week of the conference while you explore world famous Beale Street with your fellow delegates! Get your ticket online at ecommerce.memzoo.org!

Call for Papers

Dedicated Issue of AKF – Best Practices in Lighting for Zoo Animals

AKF will be creating a dedicated issue on the Best Practices in Lighting for Zoo Animals. Papers will be accepted on, but not limited to, the following topics:

- ▶ General topics in artificial lighting for zoo animals
- ▶ The importance of UVA/UVB
- ▶ Nocturnal exhibits: Red bulbs vs. blue bulbs vs. new technology
- ▶ Controlling for photoperiods and circadian rhythm
- ▶ Requirements for specific taxa: Reptiles, amphibians, birds, primates, aquatics, etc.
- ▶ Using lighting to manipulate breeding seasons
- ▶ Success stories with lighting improvements
- ▶ New trends and products

Papers should be sent electronically in MS Word and be no more than eight pages in length. Any charts or graphs should be in their native program (i.e. Excel, Word, etc.). Photos should be high resolution (300 dpi) jpg files, at least 1200 x 1800 pixels in size. Possible cover photos need to be at least 2625 x 3375 pixels in size. Be sure to include a photo credit and caption for each photo. Please reference the complete set of AKF submission guidelines at aazk.org/akf-submission-guidelines.

Interested in placing an ad, or sponsoring the issue?
Please contact AKF Editor Shane Good at shane.good@aazk.org.

Have a question about zoo lighting? Send it to shane.good@aazk.org and our panel of experts will answer your question in the dedicated issue.

**Deadline for submitting articles
for this special dedicated issue is
September 1, 2016.**



“Fresh” Frozen Browse for 0.2 Giraffe (*Giraffe camelopardalis reticulate*) for the Winter

Mary Ann Cisneros and Bobbi Crouch, Giraffe Keepers
Mesker Park Zoo, Evansville, IN

Introduction

At Mesker Park Zoo and Botanic Garden we have 0.2 reticulated giraffe (*Giraffe camelopardalis reticulate*) and daily browse is part of their diet. The giraffe are provided with it on exhibit and in holding at night. The zoo does not purchase it and keepers are expected to find it on property. The winter months severely limit the variety of browse species we are able to offer our animals. Bamboo on property is the only species that retains its leaves during the almost four-month-long period in which our deciduous plants are growing. As such, we found a way to provide other “fresh” browse during the winter months. Below are the steps that were taken to expand the variety of browse offered to the giraffe.

We first had to determine what types of browse would work. We needed to look for abundance, sustainability, freezes well, and stores well. The species we tried were willow, elm, mulberry, honeysuckle, and sweet gum. Except for willow, they did not retain leaves when frozen and thawed and took up a lot of storage space. The elm and sweet gum were slow growers. Therefore willow was the best choice. It had all the requirements we were looking for. Willow retains leaves when frozen and thawed. It is found on grounds, took the least amount of storage space, and was as sustainable as it was fast-growing.


The considerations we looked at also were the number of giraffe, the amount of bundles, required storage space to last all winter, and project time. We determined at Mesker Park Zoo that we had 4.8 m³ of space in our freezer. Our freezer would accommodate 18 bundles (one per week) plus two extra and last for four months. We needed to make

sure we had a manageable size for each bundle so we determined that the six branches of willow in each bundle could not have a base more than 2-3 inches in diameter. The number of hours used to complete the project was 20hrs spread over 4-6 weeks.

The next step was gathering materials to preserve the willow. In order to do this, we needed to find something to bind and wrap the willow. We save our baling twine throughout the year and store it in our giraffe barn. We then needed something to go around the browse to protect the leaves from drying out while in our freezer. We found that industrial plastic wrap was strong enough to cover the willow and seal it so it wouldn't dry out. Once bales were wrapped we just needed some duct tape to seal the plastic wrap at the ends.

Finally, the willow browse were tightly bound. We misted the browse so the moisture would lock in while being frozen. We then wrapped the bundles in the industrial plastic wrap, and stored them in our commissary freezer. When winter arrives, a browse bundle is pulled in the morning and ready to use by the end of the day.

Acknowledgments

Thank you to our Mesker Park Zoo management and especially keeper staff for helping us with this project every year. It takes a lot of time and effort but the giraffe not only have a better diet, but encourages natural behavior year-round. 

**It takes a lot of time and effort but the giraffe
not only have a better diet, but encourages
natural behavior year-round.**



Photo 1: Browse cut by Mary Ann Cisneros and Bobbi Crouch at Mesker Park Zoo.
Photo by Bobbi Crouch.

Photo 3: Finished willow browse ready to store in Mesker Park Zoo's commissary freezer. *Photo by Bobbi Crouch.*



Photo 2: Wrapping the willow at Mesker Park Zoo.
Photo by Bobbi Crouch.

Photo 6: Our reticulated giraffe Kizzle and Kiah enjoying their willow browse out in their yard during the winter months at Mesker Park Zoo.
Photo by Bobbi Crouch.



Environmental Rewards Points? Examining the Palm Oil Crisis and Brainstorming for Change

Chelsea Weaver, Zoo Keeper II
The Columbus Zoo and Aquarium
Columbus, Ohio

Introduction

Human actions such as habitat destruction, exploitation of natural resources, introducing invasive species, pollution, poaching, and induced climate change may be the cause of the next mass extinction event (Alvarado-Quesada, Hein, Weikard, 2013; Tilman, 2012). The palm oil industry includes all of these actions. Palm oil, due to high profitability and wide-range of uses, is a important crop in a growing number of regions throughout the world (Laurance, Koh, Butler, Sodhi, Bradshaw, Neidel, Consunji, and Vega, 2010). Unfortunately, the increasing demand for palm oil has resulted in negative impacts on the environment. Threats to biodiversity are extremely high in regions such as Southeast Asia, which has become a mecca for oil palm agriculture (Wilcove and Koh, 2010). Oil palm trees are not native to Southeast Asia and in order to create the oil palm plantations, natural forests must be cleared and the wildlife that call these areas home are put in jeopardy and faced with extinction (Laurance et al., 2010). According to Tunncliffe and Webber (2012), orangutans (*Pongo pygmaeus* and *Pongo abelii*) have lost approximately 90% of their environment in 20 years. Because of these reasons, it is crucial that the negative impacts of the palm oil industry are addressed and altered (Wilcove and Koh, 2010).

So what can be done to stop the palm oil industry from destroying the habitats that native wildlife relies on? Boycotting the palm oil industry alone is not the answer and could actually be more of a problem than a solution because it would lower the economy for the people of the region as well as allow for even more destructive agriculture to replace it (Wilcove and Koh, 2010). Instead, the emphasis should be on stopping future deforestation and making the palm oil industry sustainable, which may save the biodiversity in these regions (Wilcove and Koh, 2010). Sustainability, however, is not an easy status to achieve. For one, the key players of the palm oil industry (the oil palm growers, the palm oil producers, the palm oil product manufacturers, and the retailers of palm oil products) all need to agree on sustainable practices (Wilcove and Koh, 2010). In order to get them to all agree, pressure must be placed on them to push for a sustainable palm oil industry. This pressure can come in many forms such as monetary incentives for those companies who convert to sustainable palm oil, monetary punishments (such as boycotts of non-sustainable palm oil products) to discourage non-sustainable palm oil use, and strict regulations on converting land for palm oil plantations (Wilcove and Koh, 2010). Non-governmental





Pygmy elephants in need of relocation.



Sepilok Orangutan Rehabilitation Centre

organizations (NGOs) have had success in furthering the sustainable palm oil movement by applying pressure to government agencies and by joining forces with other organizations involved in this movement such as the Roundtable on Sustainable Palm Oil (Khor, 2011; Tan, Lee, Mohamed, Bhatia, 2009).

The Roundtable on Sustainable Palm Oil (RSPO) was created to promote sustainable palm oil and place necessary pressures on the palm oil industry to adopt sustainability principles (Ruyschaert and Salles, 2014). Products using certified sustainable palm oil can have labels that help consumers to make conservation-minded decisions about which products to buy and which companies to support (Roundtable on Sustainable Palm Oil, 2014). Along with the RSPO, zoological institutions including the Cheyenne Mountain Zoo, are raising awareness about the palm oil crisis and sustainable palm oil products through educational campaigns and a smart phone application (Bredahl, 2012). These organizations are making palm oil knowledge accessible to everyone and trying different tactics to increase palm oil sustainability. However, there is always more that can be done.

As zoo professionals, many of us currently work with or have worked with animals affected by the palm oil industry. Although we may try our best to discuss the palm oil crisis as a threat to these animals with zoo guests through ways such as keeper talks and exhibit signs, it is simply not enough. Increased education about palm oil and its threats to biodiversity around the world is needed in order to help people understand what they can do to help. The media can play an extremely important role in the decisions we make. There are some social media campaigns out there regarding the palm oil crisis, such as the "Don't Palm Us Off" campaign (Don't Palm Us Off, 2015), but people must be actively sharing this campaigns and paying attention in order to facilitate education. Radio, television, and increased internet focusing on charismatic megafauna affected by the palm oil industry could build awareness. Another potential way to increase palm oil awareness is through formal education. This topic could easily be discussed throughout many science grade levels all the way through college. By raising youth awareness through lesson plans and inquiry projects, we could be increasing the amount of current and future conservation advocates. Through these methods of education, consumers may be more likely to purchase sustainable palm oil products instead of products containing conflict palm oil. Education is one of the first steps, but alone may not have the power to sway behavior and should instead be paired with other methods (Clayton, Litchfield and Geller, 2013).

As part of my Master's coursework through Project Dragonfly's Global Field Program, I am working towards making conservation easier and more accessible for everyone to be involved with. If conservation is a part of our everyday lives, it is more likely we will stay involved and educated on current issues. Making conservation convenient and exciting should help to engage more people to participate. However, due to the continuous evolution of human behavior, the methods used to increase involvement in conservation will also need to adapt. According to a study by Clayton, Litchfield, and Geller (2013), human behavior in regards to environmental engagement can be influenced by financial incentives, time, and effort. The idea that human behavior can be molded by certain incentives mimics the main idea behind positive reinforcement training. As zoo keepers, we understand there is an increase in the likelihood that a behavior will continue if the individual is positively reinforced for doing the behavior initially. As discussed in *Don't Shoot The Dog*, these techniques, such as receiving verbal praise or gifts, can be affective with human behavior as well (Pryor, K., 2009). Therefore, if pro-environment behaviors are reinforced through some form of a reward, it would suggest that this would increase the likelihood that humans would get involved, stay involved, and make a difference in conservation efforts. These ideas formed the basis for the concept of creating a Sustainable Palm

Increased education about palm oil and its threats to biodiversity around the world is needed in order to help people understand what they can do to help.

Oil Shopper Rewards program. Similar to the fuel rewards points or other discount rewards cards offered by many grocery chains, this program would provide incentives for consumers to purchase sustainable palm oil products. If this program becomes a reality, I hope that it would eventually include other sustainable movements such as seafood and forestry. After discussing this idea with some of my instructors, I decided to research this concept further. As part of my Master's coursework, I conducted research on palm oil knowledge, current sustainable palm oil shopping practices, and likelihood to participate in the rewards program if it were created.

Methods

The survey contained 10 questions regarding participant ages (ranging from 18-years-old to over 50) and current household living status (as in who they share their home with), desire to make smart shopping choices, knowledge of the palm oil crisis, shopping habits in regards to sustainable palm oil products, and likelihood that consumers would participate in the incentive-based shopper rewards program for sustainable palm oil products. The survey questions were designed to directly relate to the sustainable palm oil shopper reward program idea and to obtain information that would help to show support or lack of support for such a program. The survey was created on Survey Monkey® and was dispersed via Facebook (personal page, group pages, and shared by friends). By the end of the survey period, which lasted from October 22, 2014 to November 2, 2014, 126 participants had taken the survey, however not all survey participants completed the survey in its entirety.

Results

A total of 126 people participated in the survey, however not all survey takers completed the survey in its entirety. Survey takers were asked to pick the answer that best represented them for the statement: "You are aware of current environmental issues, such as negative effects of the palm oil industry" (Figure 1). Of the 126 participants, 44 answered that they are very aware of palm oil and its issues and nine answered that they keep up to date on all environmental issues. The other 73 participants chose answers that stated that they either were not aware, aware of certain issues but not palm oil, or that they did not know much information about palm oil. Of the 125 participants who answered the questions regarding their participation in the rewards program, 104 participants said they would actively participate in the program in one way or another, with 88 participants stating that they would change certain purchases for the program and/or seek out as many sustainable palm oil products as possible. Ten of the survey participants stated that they would not participate in this program at all and 11 stated that they would participate but not actively.

Discussion

It was predicted that the idea of offering incentives for shopping for sustainable palm oil products would have positive effects on consumer shopping habits. With 104 of the participants stating that they would actively participate in this program and 88 of the participants being willing to change their shopping habits and seek out sustainable palm oil products, the survey results for this study strongly suggest that participation in a sustainable palm oil shopper rewards program would be high. This would also increase consumer awareness of their purchases in regards to sustainable palm oil. If the Sustainable Palm Oil Shopper Rewards program became a reality, it would help to make a difference through the bottom-up approach of applying pressure to the key players of the palm oil industry (Wilcove and Koh, 2010). This program would provide monetary incentives for sustainable palm oil (due to increased buying from consumers) and monetary punishments for non-sustainable palm oil production (consumers would be more likely to avoid products containing non-sustainable palm oil). However, there is still the issue of a lack of sustainable palm oil products being available for consumers. As of January 2013, the RSPO had only certified 14% of the world's palm oil supply as sustainable (Tunncliffe and Webber, 2013). This number will hopefully continue to increase through the efforts of organizations such as the RSPO and consumer awareness. More companies need to commit to using certified sustainable palm oil in order to provide more sustainable options to consumers.

Please pick the answer that best represents you: You are aware of current environmental issues, such as negative effects of the palm oil industry.



Figure 1: Shows survey results regarding awareness of environmental issues, particularly palm oil.

Conclusion

The solution to the palm oil problem is not simple or one-sided. There are many different approaches to creating sustainable palm oil agriculture. The results of the survey suggest that most people would change their shopping preferences to sustainable palm oil products if incented. Establishing this program could eventually incorporate other consumer initiatives promoting sustainable living. Although these efforts may start out small, they could be what the sustainable palm oil movement needs in order to be considered the norm, especially if combined. By blending conservation campaigns which tug on the heartstrings of consumers, increased education about the palm oil crisis, and increased consumer pressure on the palm oil industry to become sustainable, we can work to save the lives of the wonderful species who call these habitats home. After traveling to Borneo this past summer, I not only saw just how extensive the damage is from the palm oil industry but I also learned that many of the locals truly do care about wildlife and want to do whatever they can to help. However, they can not do it alone and they are left with few options to make a living in order to support their families. Certain attractions in Borneo, such as the Labuk Bay Proboscis Monkey Sanctuary and the Sepilok Orangutan Rehabilitation Centre, are trying to make the best of a bad situation by educating visitors while they are engaged in viewing endangered wildlife. However, in order to save the amazing biodiversity that is threatened with extinction due to palm oil, we all have to work together to form a solution and act as role models in the realm of conservation.

Acknowledgements

I would like to thank my instructors and classmates involved with Miami University's Project Dragonfly for helping me through this process, supporting my idea, providing edits, and helping me to step out of my comfort zone. I would also like to thank my coworkers for their support and all zoo professionals for fighting the good fight. 🐘

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Talkin' About Takin:

The Role of Training in Preparation for Pre-Shipment Medical Procedures

Keepers Derek Pelc, Andrea Markiewicz and Erin Brunk
Potawatomi Zoo, South Bend, IN





Figure 1. “Kong” accepts treats as his hooves are trimmed.



Figure 2. Injection training is routine for the Takin.

When animals are transported from institution to institution, pre-shipment medical examinations are necessary to ensure the health of the animal being moved. These examinations often involve sedation, and can be quite stressful. When we learned at the Potawatomi Zoo that our 1.0 juvenile takin (*Budorcas taxicolor tibetana*), “Jet-Li”, was recommended by the SSP to be moved to another facility, we began brainstorming ways to reduce the stress on both the staff and Jet using training. We had been quite successful with takin training in general, with all four of our takin knowing basic behaviors such as “target”, “shoulder”, and “hip”. Additionally, we are able to trim hooves (Figure 1), and give injections (Figure 2) to certain individuals.

One asset that helps facilitate our training success is the design of our takin exhibit and holding. The exhibit connects two separate holdings; one for our dominant male, and the other for our female and juvenile males. There’s also a chute between each holding and the exhibit (Figure 3). The takin are shifted in and out of holding every day for exhibit servicing, using their daily grain as shifting reinforcement. This allows us to train with them on both their right and left sides. This set-up was also key for Jet’s procedure.

Since Jet had excelled at injection training, we decided to first tackle the tuberculosis (TB) test; a subcutaneous injection. Given that takin are extremely hairy, the broad spectrum TB test was to be administered on the underside of his tail. We started this training by getting him accustomed to having people on both sides of him while he was in the chute. Coincidentally, Jet would shift back onto exhibit last, leaving the holding empty for keepers to work in. Within a week, Jet was comfortable with having one keeper in the normal training area, while a second keeper moved around his opposite side, and behind him in the holding. Next we began touching his hips, working our way to his tail. The keeper outside the holding provided positive reinforcement (treats), although they became less necessary as Jet took a liking to having his back and hips scratched and his tail rubbed. We were introducing a needle within another week of training, without incident (Figure 4). At this point, we started working on a voluntary blood draw. We intended to take blood from the front legs. Jet had already been trained to stand with his forelegs propped up on the chute walls (Figure 5). This was originally for filing hooves and applying hoof ointment. Again, we started with desensitizing him to touching his legs before moving to injection training. We began this training by first applying pressure with a capped syringe,

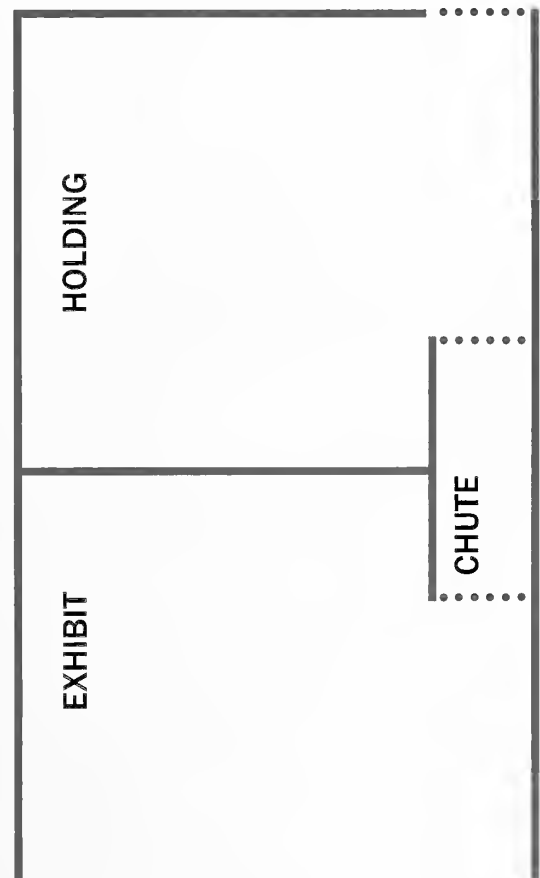


Figure 3. Layout of the Takin holding.



Figure 4. Introduction of a needle went smoothly during tail injection training.



Figure 5. The "up" command is used to work on hooves, and later to attempt blood draws.

then a blunted needle, and finally a small gauge needle. Eventually, we were able to graduate him to the size of needle necessary for the blood draw. Unfortunately, we discovered that while Jet accepted the needle, he lacked the stamina and coordination to stay in position long enough to get an acceptable amount of blood. At this time, we also found out that we would have to tag his ear prior to shipment. This, coupled with the fact that we could not draw blood meant we had to sedate him to complete his pre-ship requirements.

Since we had to sedate him, and due to a history of false positives using the broad spectrum TB test, the vet staff decided instead to perform a comparison cervical TB test with two testing sites. This test would be performed on two shaved portions of the neck, one testing for avian TB (our control, which should test positive), and the other for bovine TB (which should come back negative for a true negative test). The test sites are measured three days after the injection, like a normal TB test. Because this cervical test would have to be precisely measured, we had one more behavior to teach Jet. He had to accept the caliper measurement on his neck willingly in order to avoid a second sedation three days after the first. Over the course of this process, we had been desensitizing Jet to touching all over his body, and at this point he was quite comfortable with us touching his neck, back, hips, and tail. Since he was so comfortable, we started training with the caliper right away. Within a few days, Jet was comfortable with a slight pinch on his neck with the caliper, while being distracted by a treat (Figure 6). We were ready for the procedure.

On the day of the procedure, we were successful in injecting Jet with the sedative with little to no stress. His procedure went smoothly,

and three days later, his TB injection sites were able to be measured precisely, stress-free and without sedation. Jet's high comfort level with the keepers and vet staff is a direct result of our ability to work with him consistently. Our shift system provides us with a great opportunity for our takin to train with us daily. Much of our success in Jet's training is because we started at an early age. Being able to start conditioning and desensitizing early on is crucial for ensuring positive reactions for future sessions and procedures. Introducing items such as needles, files, clippers, and even touching and inspecting all parts of the body are vital before they associate any of these as negative stimuli. This allows keepers to build a relationship of trust, which promotes a stress-free environment for our animals and staff during necessary medical procedures.


All photos in this article were submitted by the authors. 



Figure 6. Desensitization with a caliper in preparation for checking Jet's TB results.

BHC comments by Jay Pratte:

The authors did a very good job of looking not only at the natural history of the animal in question, but also at his individual history and capability. When Jet did not have the stamina to hold a challenging position for long, the trainers adapted and looked for another means of reaching their goal. We always stress that the species' genotype should shape training goals, thinking about what we may want "a lion" to do. But then we may end up with "our lion", who has specific challenges and may not be able to do what we think "a lion" should. This is important in dealing with animals that may have been injured, have some type of disorder or ailment that impairs them, and is especially so with geriatric animals. The older ones slowly experience changes in what they CAN do, and we need to allow them leeway, and possibly set new goals accordingly. If an animal is comfortable in the space/position you are requesting, they will be more willing to participate, and able to hold for longer durations.

It is also particularly good to read about such forward thinking and planning in a training program. Often, our goals are set based on what every zoo trains the species to do, or on immediate needs/goals. When I provide training advice in the various areas in our zoo, and someone asks me "What else should I train for?", my answer is always the same. EVERYTHING. If you mastered injections, blood draws, and ultrasounds, shape nail and wing trims. Have them learn to present eyes for saline drops, ears for inspection, anything to help prepare for what *might* occur in the future, and thereby giving you valuable tools to treat your animal and reduce stress for everyone involved. Great Tale, thank you!

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- Submit a brief description of a training project at your facility. These can be 500 words or less, in text or bullet points – it can be longer (up to 1000 words); however, short and simple descriptions with a few images are just as perfect. Details should include the following:
 - Define the training goal (what did you try to do and for what purpose?)
 - List important steps (How did you do it – include plans that changed along the way/what worked and what didn't work)
 - Timeline used (how long did it take)
 - Tips you learned along the way
- Include 3-5 digital photos that clearly depict the animal in the learning process or performing the desired goal (provide photo caption and photographer of each image). Photos need to be 300 dpi and at least 1200 x 1800 pixels.

Please send entries or questions to:

Kim Kezer at kkezer@zoonewengland.com or
Shane Good at shane.good@aazk.org
(use Training Tales Submission as the subject).



COORDINATORS: Casey Plummer, Caldwell Zoo • Heather Dunn, The Environmental Center Miami, Florida • Julie Hartell-Denardo, St. Louis Zoo • Dawn Neptune, Hogle Zoo

Enrichment Program Makeover

Janice McNernie: Assistant Lead Keeper
Amy Martens: Primate Keeper
Lincoln Park Zoo, Chicago, IL

OVERVIEW

Like many other enrichment programs at accredited zoos, Lincoln Park Zoo's, Chicago, IL, Regenstein Center for African Apes (RCAA) embraced the S.P.I.D.E.R. framework: Setting goals; Planning; Implementing; Documenting; Evaluating, and Re-adjusting enrichment initiatives for resident chimpanzee (*Pan troglodytes*) and western lowland gorilla (*Gorilla gorilla gorilla*) social groups. RCAA animal care staff identified enrichment goals in line with the philosophies of Lincoln Park Zoo's Behavioral Husbandry Program, including: Engaging the animal(s) physically, psychologically, or in some instances, socially; promoting behavioral diversity; increasing or decreasing a targeted behavior, or trouble-shooting undesirable behavior(s). Enrichment was implemented, documented, and evaluated using a standardized rating system on a daily basis. However, over the years, RCAA animal care staff began to "set it (enrichment) and forget it", overlooking the "Evaluation" and "Re-adjustment" components of the S.P.I.D.E.R. model. This paper will outline the challenges faced by RCAA animal care staff to revitalize what had become a static enrichment program. Methods for evaluating and re-adjusting enrichment initiatives will be outlined, as well as steps taken to improve overall efficiency, used to create a more effective and self-sustaining enrichment program.

Introduction

The structure of RCAA's enrichment program historically comprised of eleven different veterinarian-approved categories intended to: Stimulate the apes' olfactory and visual senses (Category A, O); add variation to the daily diet (Category B,C,D); increase foraging time (Category E,G), and alter the environment (Category F, H, I). The multitude of choices was meant to motivate keepers to maintain a variable and novel environment for the apes. The monthly calendar and

corresponding legend (Fig.1) was designed to alternate between enrichment categories from day to day, with the intention that each category be offered only two to three times a month. Keepers occasionally had the option of choosing one of two categories listed that day, and within that category, and choosing from an extensive list of approved enrichment devices or diet items.

On paper it appeared to be a comprehensive system, but there was a need for further evaluation to substantiate whether or not it actually succeeded in creating a variable and novel environment. Keepers were asked to track what enrichment items they offered each day and the extent to which the animals interacted with the enrichment based on casual observations.

This documentation revealed patterns and trends of what enrichment was provided and at what frequency. The results, shown in Figure 2, revealed that keeper staff tended to gravitate towards a limited selection of "grab and go" items; likely chosen for their convenience, rather than their purpose (i.e. to elicit a specific behavioral goal). Often these items were enrichment foods, paper products or basic plastic items (e.g. Boomer Balls®). However, enrichment from categories D, E, F, G, and O were infrequently chosen. Despite the flexibility of a keeper-choice based program, it was not effectively achieving variability or novelty as it was intended. In addition, the enrichment categories that were most frequently offered were not necessarily targeting behavioral goals that were meaningful to chimpanzee and gorilla behavior. These enrichment categories were originally created as part of a zoo-wide initiative, such that the goals were very broad and covered the behavioral needs of many different taxa; i.e. not species-specific.

Based on this evaluation, it was clearly time

to re-adjust the RCAA enrichment program. This paper will give a detailed account of the application of the S.P.I.D.E.R model that is needed in order to do a complete "makeover" of RCAA's enrichment program. Furthermore, the overall purpose of this paper is to share the multifaceted process and inspire other institutions to evaluate and re-adjust their own programs.

Setting Goals

We agreed upon three main objectives for the revised enrichment program: 1) Provide occupational enrichment devices daily to elicit ape-specific behavioral goals such as sustained foraging that required object-manipulation, problem-solving, and/or tool use 2) Schedule a specific rotation for providing nesting and browse materials, and 3) Organize the program to maximize keeper efficiency in terms of planning and preparation. Based on the results from previous enrichment evaluations, the apes seemed to interact for longer durations of time with occupational enrichment devices. Therefore it made sense to focus our efforts on specifically scheduling these types of occupational enrichment devices on a daily basis. Also, considering the natural history of ape nest building behavior, we wanted to increase the variety and abundance of bedding materials provided on a daily basis. Fiber is also an important component of ape diets; therefore we wanted to provide a variety of browse and cardboard paper products on a routine basis. Finally, we wanted the program itself to be beneficial for the keepers too; easy to understand and implement, and efficient to execute on a daily basis.

Planning

To accomplish these objectives, one type of occupational enrichment device was to be offered each day. This could only be accomplished by expanding the types and quantity of such devices, through creativity and

RCAA Enrichment January 2009						
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
					1 F or J	2 G or C
3 D	4 I	5 J	6 H	7 O	8 A	9 B
10 D	11 C	12 E	13 H	14 F or A	15 G or B	16 I
17 D	18 J	19 O	20 H	21 A	22 B	23 C
24 D	25 E	26 F or J	27 H	28 G or C	29 I	30 J
31 D						

- A Scents and spices.....cinnamon, almond extracts
- B Change in diet presentation.....frozen or cooked food items
- C Food Items..... sugar-free jam, ketchup
- D Browse.....willow, mulberry
- E Occupational...chow feeders, pill
- F Attached furniture...hanging ball or tire
- G Object manipulation....Boomer Ball®, spool
- H Paper... cardboard, paper towel tubes
- I Substrate.....moss, woodwool, hay
- J Keeper choice
- O Other sensory...mirror, TV.

Fig. 1. This calendar represents the schedule for enrichment categories. A keeper would choose an item within the category and offer it as the enrichment for the day. Some days keepers had the option of choosing between two different categories.

the utilization of a wealth of resources. Working within the constraints of the departmental enrichment budget, we focused on utilizing supplies that were already in-house, such as PVC, plastic milk or bread crates, and fire hose, to construct “home-made” enrichment devices rather than purchasing more costly pre-fabricated alternatives. We also obtained a number of donated supplies from outside the zoo, including durable tablecloths from the zoo’s catering company, coffee bags from a local distributor, and large plastic drums from a local company. Online enrichment databases and visits to other zoological institutions also proved to be a valuable source for ideas.

We also took a more proactive approach to ensure we had a steady supply of browse year-round for the new enrichment schedule. In the summer months we scheduled browse collection, typically willow, poplar and mulberry harvested from our zoo browse garden. As fall approached, we scheduled days to cut, bag, and freeze browse. We focused on freezing the foliage and flexible terminal branches of browse trees to maximize the quantity we could fit in our freezer. The remaining branches were cut into sticks or logs to be stored in bins. Ultimately, the winter browse rotation included a schedule of alfalfa, frozen browse, sticks, or logs.

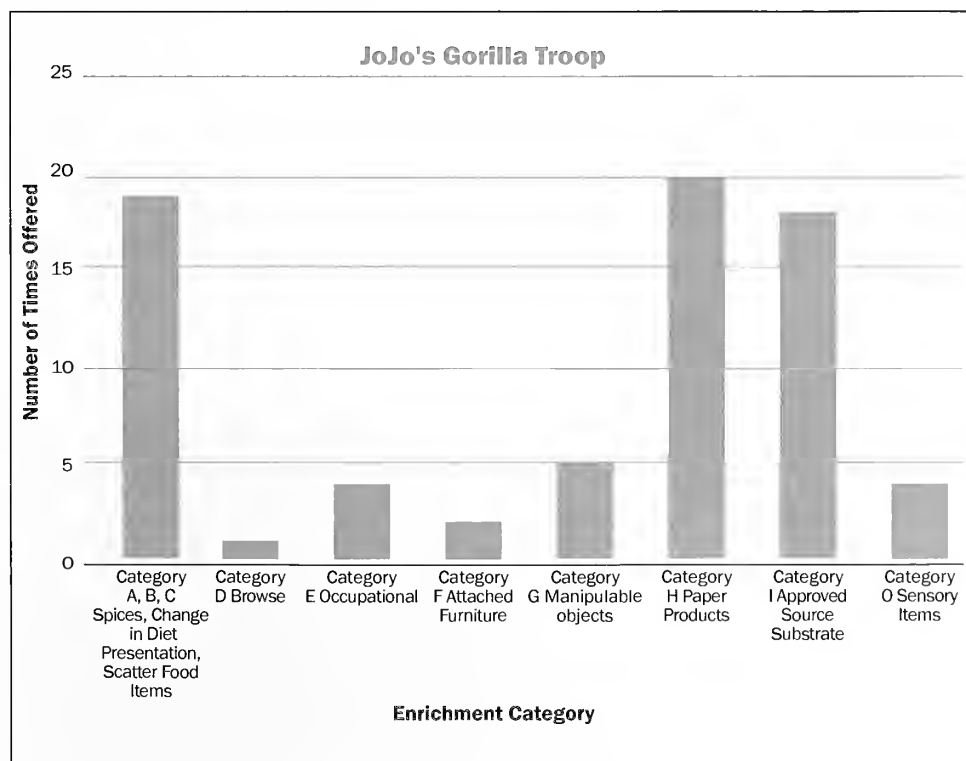
This collaborative planning process ultimately resulted in the development of monthly calendars for each ape group with no repetition of occupational enrichment devices within a month or between groups on a single day. Keepers were given an overview of the new individualized calendars (Fig. 3) and a list of all enrichment items including their behavioral goal(s), a short description, any safety considerations and additional tools required for the device to be utilized properly.

Implementing

The new program was launched and overall it was an easy transition for keeper staff. Previously, enrichment was prepared immediately prior to setting it up in the ape exhibits in the morning. However, mornings at RCAA are exceptionally busy with training, cleaning and facilitating behavioral research, so we agreed upon a new strategy in which keepers would prepare enrichment in the afternoon and bring it directly to the animal management area for each ape group the day before. If perishable foods were to go inside enrichment items, these were also prepared

the day before and stored in our cooler for the next day, so it was ready to grab-and-go. This increased our efficiency the following morning and allowed more complex enrichment items to be used more regularly. This also included enrichment that required preparation a day or two in advance, such as ice treats or Jell-O® balls, which were rarely offered in the previous program. Ultimately, increased efficiency led to greater keeper compliance. Guidelines were also established such that all enrichment devices were removed the following day, disinfected, then immediately returned to the general enrichment storage area. Keepers were also asked to coordinate

Fig. 2. The graph reveals the different enrichment categories to choose from and the frequency they were offered in the evaluation period.



RCAA Bachelor Enrichment April 2013

BEDDING	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Bale of Hay		1 Mirrors/TV (Small, Large, and/or Looky Loo)	2 Raisin Logs	3 Frozen Browse (1-2 Bags)	4 Small PVC Tubes (2-3 Per Animal)	5 Plates (5 Small)	6 Pili and 2 Attached Forage Balls
Sheets	7 Cardboard/ Large Tubes	8 Free Forage Balls (1 Large, 2 Medium, 2 Small)	9 Wiffle Ball Feeder (5 Balls per feeder)	10 Alfalfa	11 Forage Piles (3-4 Piles)	12 4 Chow/ Forage Feeders	13 Juice Balls (2 per animal)
Woodwool	14 Cardboard Exhibit Modification	15 Termite Mound (4)	16 4 Shakers	17 Logs/Sticks	18 2 Spinners ** Prepace Treats	19 Hanging Barrels, Tub, and/or Honey Pot	20 Hanging Ice Treats (3)
Burlap	21 Paper	22 7 Honey Sticks	23 Jello Balls (2 per animal)	24 Hay	25 Food in Bags (3 per animal)	26 4 Hanging PVC	27 3 Pull Feeders
Sheets	28 Cardboard	29 Mirrors/TV (Small, Large, and/or Looky Loo)	30 Small PVC Tubes (2-3 Per Animal)				

Figure 3. Outlines the new calendar with initiatives, browse and fiber source included.

*See forage sheet for amount. **1-2 times per month, 1 tbsp per animal.

***10 per animal.

and plan ahead to modify an exhibit one day a month for each ape group. This was typically a larger project, such as adding a new hammock or re-configuring hanging vines.

Documenting

The documentation phase consisted of two parts: keeper satisfaction and enrichment usage by the apes. Keepers were asked to note any comments, questions, or concerns with the program so any issues could be addressed and later re-evaluated and re-adjusted. For example, keepers initially needed clarification regarding which food items were to be used with specific devices, how many of each device should be offered to each social group, and what to do if a scheduled device was unavailable on a given day. These, and other small issues, were easily solved with open communication and added detail to the calendars. In addition to documenting the functionality of the program, information was recorded on each of the individual initiatives. The enrichment assessment process was a 1-5 ranking system dependent upon the engagement of the animal. The enrichment could be assessed directly (1- no reaction, 2- flee or avoid, 3- look at, no interaction, 4 -minimal interaction < 5 minutes and returns), and indirectly (A- significant contact, B -contact, moved etc. and C -no evidence). Videos and photos of the animal interactions

with enrichment devices were also recorded if possible (Figure 4).

Evaluation and Re-Adjustment

The evaluation process for the revised enrichment program began by meeting with management staff to discuss and problem-solve the feedback received from keepers. The team discussed two major concerns: the perceived lack of creative freedom, and the perception that certain occupational enrichment devices were too difficult for the apes to utilize. Some staff felt that the revised enrichment program had completely eliminated "keeper choice". They had to be reassured that there were other ways to express their creativity. They were encouraged to vary the types of foods that could be presented in any of the occupational enrichment devices, choosing from a list of 30 different pre-approved items and amounts (Fig.5). Keepers were also given the option of providing other non-occupational enrichment items from the other categories in the previous program, emphasizing that the new calendars and schedule provided the minimum enrichment standard for each day; additional enrichment was always welcomed. The team also met to discuss their concerns that some enrichment devices were too difficult for the apes to utilize. This concern was ultimately resolved through the evaluation of enrichment device usage with each ape group.

Instead of eliminating an item right away, staff committed to offering it multiple times and tracked their usage. If, after it was offered several times with little interest or success, keepers would then demonstrate to the apes how to use the item. Often this led to one or two individuals figuring out the task, and then the other apes eventually participated via social learning. If a device was still not utilized after these steps, then the item was removed from the rotation. Ultimately, the staff was reminded that the behavioral goals of these occupational enrichment devices were to elicit problem-solving, tool use, and social and sustained foraging. In this manner, the learning process itself was meeting our goals. In addition, the high level of difficulty that these occupational enrichment devices required in their usage successfully increased the amount of time the apes were engaged physically and mentally. After seeing these results, the staff was on board.

CONCLUSION

After the initial comments and concerns were addressed, all keepers were pleased with the new rotation and felt that it was making a positive change to the care of the chimpanzees and gorillas. The goal of improving the Behavioral Husbandry Program at RCAA was achieved! Efficiency of the revised enrichment program was improved and more complex occupational enrichment devices were routinely offered. Not only did it improve

Figure 5. Lists the approved enrichment food items that are offered to the apes in conjunction with the enrichment devices. Amounts were calculated as part of their daily diet and allocated during diet preparation a day in advance.

RCAA Enrichment Foods	
Dilute fruit juice	Molasses**
Jell-O®; sugar-free	Mustard**
Applesauce*	Pumpkins
Jam; sugar-free*	Baby food
Raisins*	Sunflower seeds
Frozen blueberries*	Crickets***
Cereal*	Waxworms***
Pasta*	Mealworms***
Popcorn*	Peanuts***
Rice*	Steel cut oatmeal
Quaker® oats	Coconuts
Honey**	Frozen Peas
Peanut butter**	Mixed nuts
Salsa*	Ketchup**
BBQ Sauce**	Kool-Aid®; sugar-free
*See forage sheet for amount	
**1-2 times per month, 1 tbsp per animal	
***10 per animal	

animal welfare, it also rejuvenated the keepers' excitement for enrichment.

In conclusion, the SPIDER model can be utilized for more than just individual animal enrichment devices. This paper demonstrated how the model can be a helpful tool in managing an overall program. A major enrichment program "makeover" was completed. It may seem daunting, as the main challenges were time constraints and budget, but the whole process only took twelve months to expand our enrichment inventory and then six months to launch and troubleshoot the calendars. The team is committed to maintaining the fluidity and constant state of evaluation and re-adjustment that is essential for a successful program. It's a difficult task, but a challenge the keepers at RCAA look forward to proactively tackling. 🐾

Editor's Comments

Casey Plummer

This article is a great example for utilizing a more modern approach for enriching animals. The use of the S.P.I.D.E.R. method allows zoos and zoo keepers to have a complete and comprehensive manner of tracking animal enrichment. The zoo keepers in this article recognized that "easy" enrichment was primarily given to the animals due to the lack of time in their day. By using the S.P.I.D.E.R. method, keepers were given the opportunity to re-evaluate their enrichment program, thus being able to provide the best care for their animals.

It is noteworthy to see the keepers in this article think outside the box, when it came to finding enrichment when on a budget. This is an excellent reminder to take in consideration local companies that may be able to donate various items. Furthermore, time is a common issue found in most zoos, yet these keepers were able to overcome that obstacle with some strategic planning. Remember, that with just a little bit of time and planning, we will be able to offer the optimal enrichment programs for our animals.

Figure 4. (Top left) A female gorilla using a tool to extract sugar-free Jell-O® from a "whiffle ball feeder".
(Top right) A female chimpanzee using the "spin-a-snack", a modified version of a device designed by the Denver Zoo.
(Bottom left) A female chimpanzee manipulating an attached "PVC shaker" tube to get mixed nuts.
(Bottom right) A male gorilla utilizing a "forage ball" to extract sunflower seeds from tiny holes. *Photos by Janice McNernie*



Sticking My Neck Out for Giraffe, a Keeper's Journey to Africa to Help Conserve Giraffe

Melaina Wallace, Animal Keeper
Disney's Animal Kingdom
Orlando, FL

After having worked with the Giraffe Conservation Foundation (GCF) from the States on World Giraffe Day projects as well as Longnecks for Longnecks fundraising events and having met Dr. Julian Fennessy at Disney's Animal Kingdom (DAK), I was able to make the journey to Windhoek, Namibia to work with GCF first hand. My trip was a total of two weeks spent assisting GCF on all aspects of an NGO. I was able to spend some of the time working in the field establishing hiking areas for their new Environmental Education (EE) programme and surveying an area for a potential giraffe education centre. I also spent time working in the GCF office where the work is always ongoing. Running an NGO is a non-stop job and one that performs many aspects that many people might not think about.

The first week of my trip, August 1-8, 2015, I spent many hours working with Rachel du Raan, GCF Environmental Education Coordinator. We began by reviewing the EE curriculum the schools in Windhoek are required to work into their syllabus. The Namib Desert Environmental Education Trust (NaDEET) has developed numerous environmental

education programs that supplement the standard Namibian curriculum and strengthen aspects of environmental education. GCF is establishing an EE program based on the NaDEET work. The GCF EE program, Khomas Environmental Education Programme (KEEP), will focus its attention on primary (grade 2-3) and secondary (grade 8-9) school children in the Khomas Region of Namibia. While all schools in the region will be welcome and encouraged to join KEEP, a focus will be placed on under-developed schools.

A large part of KEEP will be to get kids in the bush. We feel there is no better way to connect children with the environment and nature than to bring them into it. Doing this requires finding a safe place for the children to hike that will also provide a diverse environment. During my trip, three locations were chosen to hike and evaluate the best possibility.

Rachel and I hiked Daan Viljoen National Park located just a short drive outside the city. Daan Viljoen offers already-established hiking trails, bathroom facilities, and a nice flat area of grass shaded by large trees where the children

can have a lesson, play a game and enjoy a provided lunch. The hike is ~3km and can be fairly easily navigated by children. A day prior to our visit, I hiked the trail with Julian and his family. His children, grades 1 and 3, were both able to hike the trail without issue. The trail uses a natural riverbed and has various habitats and ecosystems that can be used as tools in the field. The park is host to a lot of wildlife as well. While hiking we saw giraffe, zebra, oryx, eland, springbok, hartebeest, wildebeest, warthog, ostrich, and many other birds. The park is also close to a recycling plant and waterworks plant that could be used as side trips, time permitting.

The second area we hiked, River Crossing, is also close to Windhoek. There is however no designated trail already established. A trail could be cleared but this would take time and manpower. There are also currently no bathroom facilities for school groups; a lodge is on the property however in case of emergencies. There are no safe open areas for the children to play games. The hike was ~2km but gets tough as it is not cleared and becomes steep in some areas. More breaks would be

Eland



Giraffe



Hyrax



required along the way to allow the children to rest. The area provided limited habitat and ecosystem tools to use in the field and therefore the EE coordinator or teachers would have to carry and provide more tools. There is wildlife in the area, however it is a very large property and viewing of the wildlife is more of a challenge. This area is being considered for a possible giraffe education centre. If this project were to go through and the centre were built, then it would be an obvious choice for school groups. The area is far from the recycling and waterworks plants.

Our third location, Avis Dam, is located close to Windhoek. It is a popular place for locals to hike, bike and walk their dogs. The area provides plenty of open areas for a lesson, game and a provided lunch. There are no bathroom facilities. The established trail is 4.2km and is an easy hike for children. There are a number of habitat and ecosystem tools already available however wildlife is very

We feel there is no better way to connect children with the environment and nature than to bring them into it

limited in this area. The area is far from the recycling and waterworks plants.

After evaluating all three locations, we agreed that Daan Viljoen would be the best choice at this time. It not only gives a sense of adventure and excitement, but it obviously has more wildlife opportunities, more habitat and ecosystem tools, a safe and open space for the children and existing bathroom facilities. There is also National Park staff on location to assist in case of an emergency.

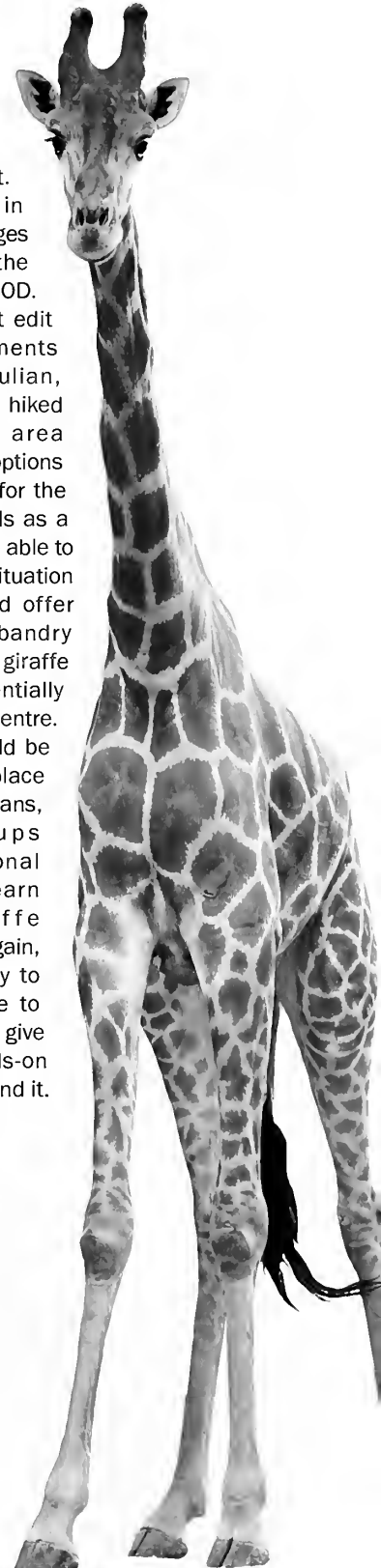
With a location chosen, Rachel and I hiked Daan Viljoen once more. We took along our lesson plans and google maps to assist in the planning of the day's hike. We marked the flat area of grass with shade trees as the location to be used for the beginning lesson plan and the area to hand out backpacks and water. The bathroom facilities are in this area as well which is ideal for the beginning and end of the hike. Along the hike we established areas to talk about key points of the learning plan. Some of these key points will also involve an activity, such as a debate game, therefore we chose areas that provide shade for the children. These areas would also provide a short break for the children where they can sit for water. We determined that Rachel will need to hike the area with the park warden at a future date to determine if it will need to be modified during the rainy season as the hike does follow the riverbed. A modification should be easy to manage as there is plenty of land on either side of the riverbed. At the end of the hike the children will either be bused back or will walk alongside the paved road to the open area location where the hike began. This location will once again be used for their lunch break, the final portion of the lesson plan and the final game within the lesson.

Having the lesson plan established before hiking proved to be ideal as we were then able to incorporate it into our hike. The EE program is currently applying for grants in order to establish the funds needed to get it up and running. Rachel and I met with the Ministry of Education and Tourism and gained their support in the program. The current plan is to do a test run with a class or two in October 2015 and begin the full program in January 2016.

The second week of my trip consisted of office time to work on all other aspects of an NGO. Dr. Julian and Stephanie Fennessy have their hands full working on all of these aspects on a daily and sometimes nightly basis. The work never ends as there are always proposals to write, grants to apply for, projects that need further work, conferences to plan, marketing, etc.

Julian was recently in the field as a part of a giraffe research project in Uganda's Kidepo Valley. In order to help establish giraffe populations within that area, ID photos were taken. Through these photos I have identified at least nine adult females, nine adult males, three subadult females and two subadult male giraffe. The ID photos have been placed in individual folders and will be printed and given to guides in the area.

My next project was to edit a plan for the GCF Giraffe Conservation Centre concept. The project is in the planning stages and will need the approval of the BOD. In order to best edit and add comments to the plan, Julian, Stephanie and I hiked the proposed area and discussed options and best plans for the centre. My skills as a zoo keeper were able to be used in this situation as well. I could offer advice on husbandry and training of giraffe that could potentially be a part of the centre. The centre would be an invaluable place for local Namibians, school groups and international travelers to learn about giraffe conservation. Again, what better way to connect people to a cause than to give them the hands-on experience around it.



Giraffe



Ostrich




I have also had the opportunity to work on brochures to encourage citizens in science in the areas of Lake Mburo and Kidepo Valley. By using Giraffe Spotter, a website established and run by GCF, locals, guides, tourists, etc. can download photos of giraffe in these two locations and the coordinates of the location the giraffe were spotted. This information will be assessed by GCF in order to help determine giraffe numbers in these areas.

The Giraffe Indaba III will be held in South Africa in late August. GCF is very busy planning the Indaba and I was able to assist by making materials and reviewing the programme. I wrote a press release concerning the Indaba as well. This is a huge project taken on by GCF and held every two years. While it is a lot of work for the GCF staff, it has huge benefits for giraffe researchers and therefore the giraffe species.

Prior to the Indaba the Giraffe and Okapi Specialist Group (GOSG) will meet. To assist with GOSG, I compiled information and photos and uploaded them into the IUCN SSC Giraffe and Okapi Specialist Group website. This is a site that provides general information, conservation and threats, past/current projects, future projects and FAQ on giraffe and okapi.

In my last couple of days, I worked on writing

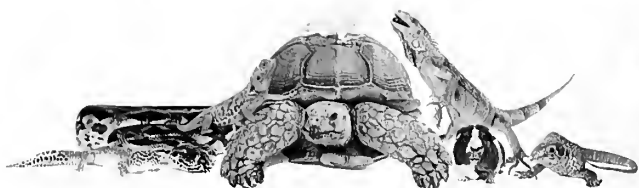
grant proposals for the GCF EE program. The program's success will be dependent upon grant funding, so this is a very important aspect of the work that needs to be done. Many of the aspects of an NGO were quite foreign to me. It has definitely been a great learning experience for me and hopefully I was able to provide much needed assistance for GCF. Julian and Stephanie definitely have their hands full, but are dedicated to this wonderful organization. They have a passion for giraffe conservation that is evident in the work they do. Being a giraffe researcher sounds like an exciting and glamorous job, and it is, but there is so much more to it then research in the field. The behind-the-scenes work that has to be done to run an NGO is never ending, time-consuming and can be very tedious work and yet they do it all and save giraffe along the way.

Thank you to GCF's Julian, Stephanie and Rachel for allowing me to join you in this great organization. It has provided me with new skills to take home and allowed me to see another giraffe subspecies. A huge thank you as well to Disney's Animal Kingdom for your support and the American Association of Zoo Keepers for providing me with a travel grant. This has been an experience of a lifetime and my work with GCF will continue on in the States as I too have a passion for giraffe conservation. 



Melaina's trip to Namibia was partially funded by an AAZK professional development grant. To learn more about the grant, and all of our other grant opportunities, please go to: <https://www.aazk.org/committee/grants-committee/>

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ATTENTION

To the Professional Membership of the American Association of Zoo Keepers

The Board of Directors is proposing to amend the Bylaws of the Association during the Annual AAZK Conference in Memphis, TN by vote of the professional members in attendance. Per Article VIII, Section 1 - Amendments:

New Bylaws may be adopted or these Bylaws may be amended or repealed by a majority vote of the eligible voting membership at any Annual Business Meeting or special meeting. Provided the membership has received published notification of the amendments or repeals forty-five (45) days prior to the Annual Business Meeting.

A copy of the proposed revisions is available from the Administrative Offices of the American Association of Zoo Keepers by contacting Ed.Hansen@aazk.org.

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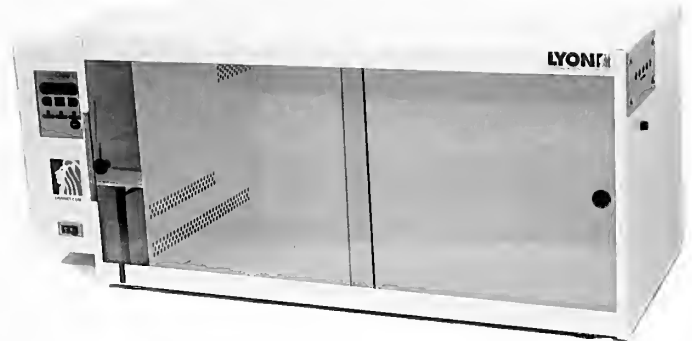
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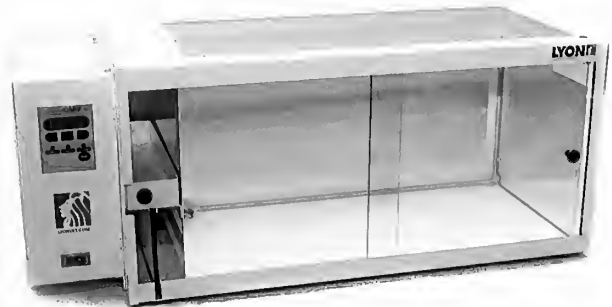


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